

I CLAIM:

1. An inlet tube for supplying fuel to a manifold of a combustor in a gas turbine engine, the inlet tube comprising:

a tube body;

a longitudinal primary channel defined in the tube body, the primary channel having first and second ends, the second end being in fluid communication with the manifold; and

a side inlet defined in an outer surface of the tube body and being in fluid communication with the first end of the primary channel, such that fuel entering the side inlet is delivered in the primary channel with a fuel pressure being generally directed along a radial axis of the tube body;

whereby the fuel enters the side inlet and travels through the primary channel to the manifold.

2. The inlet tube according to claim 1, wherein the tube body also defines a longitudinal secondary channel, the secondary channel being in fluid communication with the manifold and being side-by-side with the primary channel, and a second side inlet is defined in the outer surface of the tube body, the second side inlet being in fluid communication with the secondary channel.

3. The inlet tube according to claim 1, wherein the side inlet communicates with a circumferential groove defined in the outer surface of the tube body.

4. The inlet tube according to claim 2, wherein the tube body is bent along an axis perpendicular to a plane containing the axes of the primary and secondary channels.

5. An inlet tube for supplying fuel to a manifold of a combustor in a gas turbine engine, the inlet tube comprising:

an tube body;

a heat shield surrounding at least part of the tube body such as to protect the at least part of the tube body from heat damage;

a chamber defined by a free space between the heat shield and the tube body, the chamber being in fluid communication with potential fuel leak sources in the tube body;

a drain channel defined in the tube body and having first and second ends, the first end being in fluid communication with the chamber such that any liquid contained in the chamber is directed in the drain channel; and

a drain hole defined in an outer surface of the tube body remote from the at least part of the tube body surrounded by the heat shield and in fluid communication with the second end of the drain channel, such that any liquid contained in the drain channel is directed out of the tube body through the drain hole;

whereby a fuel leak from any of the potential leak sources produces fuel which is received in the chamber and directed out of the tube body through the drain channel and the drain hole, such that the fuel coming out of the drain hole is safely disposed of and easily noticeable to allow detection of the leak.

6. The inlet tube according to claim 5, further comprising:

a longitudinal primary channel defined in the tube body and being in fluid communication with the manifold and in fluid communication with at least one of the potential leak sources;

a side inlet defined in an outer surface of the tube body and being in fluid communication with the primary channel, such that fuel entering the side inlet

is delivered to the manifold through the primary channel with a fuel pressure being generally directed along a radial axis of the tube body.

7. The inlet tube according to claim 6, further comprising a longitudinal secondary channel defined in the tube body, the secondary channel being in fluid communication with the manifold and being side-by-side with the primary channel, and a second side inlet defined in the outer surface of the tube body, the second side inlet being in fluid communication with the secondary channel.

8. The inlet tube according to claim 5, wherein a part of the tube body located in the chamber is bent.

9. A method for feeding fuel to a manifold of a combustor in a gas turbine engine, the method comprising the steps of:

providing a fuel inlet tube defining a primary channel in fluid communication with the manifold; and

feeding fuel under pressure in the primary channel through a side inlet defined in an outer surface of the fuel inlet tube in order to generally direct a pressure force produced by the fuel along a radial axis of the fuel inlet tube.

10. The method according to claim 9, further comprising the steps of providing a secondary channel in the inlet tube, the secondary channel being in fluid communication with the manifold and being side-by-side with the primary channel, and feeding fuel in the secondary channel through a second side inlet defined in the outer surface of the fuel inlet tube.

11. A method for detecting a leak in an inlet tube supplying fuel to a manifold of a combustor in a gas turbine engine, the method comprising the steps of:

providing a heat shield surrounding at least part of the inlet tube so as to protect the at least part of the inlet tube from heat, a free space between the heat shield and the inlet tube forming a chamber in fluid communication with a leak source;

receiving fuel coming from the leak source in the chamber;

directing the fuel from the chamber out of the inlet tube through a drain channel defining a drain hole in an outer surface of the inlet tube; and

detecting the fuel coming out of the drain hole.

12. The method according to claim 11, wherein the method contains a preliminary step of feeding fuel in at least one channel defined in the inlet tube through a side inlet, the channel being in fluid communication with the leak source.

13. An inlet tube for supplying fuel to a manifold of a combustor in a gas turbine engine, the inlet tube comprising:

a tube body;

channel means defined in the tube body, the channel means being in fluid communication with the manifold;

side inlet means defined in an outer surface of the tube body and in fluid communication with the channel means, such that fuel entering the side inlet means is delivered to the channel means with a fuel pressure generally directed along a radial axis of the tube body;

whereby the fuel enters the side inlet means and travels through the channel means to the manifold.

14. The inlet tube according to claim 13, wherein the tube body is bent along an axis perpendicular to a plane containing the axes of the channel means.

15. An inlet tube for supplying fuel to a manifold of a combustor in a gas turbine engine, the inlet tube comprising:

a tube body;

heat protecting means surrounding at least part of the tube body;

a chamber defined by a free space between the heat protecting means and the tube body, the chamber being in fluid communication with potential fuel leak sources in the tube body;

drain means in fluid communication with the chamber such that any liquid contained in the chamber is directed out of the tube body through the drain means;

whereby a fuel leak from any of the potential leak sources produces fuel which is received in the chamber and directed out of the tube body through the drain means, such that the fuel coming out of the drain means is safely disposed of and easily noticeable to allow detection of the leak.

16. The inlet tube according to claim 15, further comprising:

channel means defined in the tube body, the channel means being in fluid communication with the manifold;

side inlet means defined in an outer surface of the tube body and in fluid communication with the channel means, such that fuel entering the side inlet means is delivered to the manifold through the channel means with a fuel pressure generally directed along a radial axis of the tube body.

17. The inlet tube according to claim 16, wherein a part of the tube body located in the chamber is bent along an axis perpendicular to a plane containing the axes of the channel means.